

107TH CONGRESS  
1ST SESSION

# H. R. 3316

To amend the National Institute of Standards and Technology Act to establish research programs to improve the security of networked information systems, to enhance the ability of the National Institute of Standards and Technology to improve computer security, and for other purposes.

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## IN THE HOUSE OF REPRESENTATIVES

NOVEMBER 16, 2001

Mr. BAIRD (for himself, Mr. MATHESON, Mr. UDALL of Colorado, and Mr. HONDA) introduced the following bill; which was referred to the Committee on Science

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## A BILL

To amend the National Institute of Standards and Technology Act to establish research programs to improve the security of networked information systems, to enhance the ability of the National Institute of Standards and Technology to improve computer security, and for other purposes.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*

3       **SECTION 1. SHORT TITLE.**

4       This Act may be cited as the “Computer Security En-  
5       hancement and Research Act of 2001”.

1 **SEC. 2. FINDINGS AND PURPOSES.**

2 (a) FINDINGS.—The Congress finds the following:

3 (1) The National Institute of Standards and  
4 Technology has responsibility for developing stand-  
5 ards and guidelines needed to ensure the cost-effec-  
6 tive security and privacy of sensitive information in  
7 Federal computer systems.

8 (2) The application of best security practices  
9 developed by the National Institute of Standards  
10 and Technology is important for protecting sensitive,  
11 but unclassified, information controlled by Federal  
12 agencies.

13 (3) The Federal Government has an important  
14 role in supporting research and education activities  
15 needed to ensure the security of future networked  
16 information systems in both the public and private  
17 sectors.

18 (4) Technology, including applications of cryp-  
19 tography, exists that can be readily provided by pri-  
20 vate sector companies to ensure the confidentiality,  
21 authenticity, and integrity of information in elec-  
22 tronic form associated with public and private activi-  
23 ties.

24 (5) The development and use of encryption  
25 technologies by industry should be driven by market

1 forces rather than by Government-imposed require-  
2 ments.

3 (b) PURPOSES.—The purposes of this Act are to—

4 (1) establish research programs focused on im-  
5 proving the security of networked information sys-  
6 tems;

7 (2) promote the development of a vigorous aca-  
8 demic research community engaged in leading edge  
9 research on computer and communications security;

10 (3) reinforce the role of the National Institute  
11 of Standards and Technology in ensuring the secu-  
12 rity of unclassified information in Federal computer  
13 systems; and

14 (4) promote technology solutions based on pri-  
15 vate sector offerings to protect the security of Fed-  
16 eral computer systems.

17 **SEC. 3. RESEARCH ON THE SECURITY OF NETWORKED IN-**  
18 **FORMATION SYSTEMS.**

19 The National Institute of Standards and Technology  
20 Act is amended—

21 (1) by moving section 22 to the end of the Act  
22 and redesignating it as section 32; and

23 (2) by inserting after section 21 the following  
24 new section:

1 “RESEARCH PROGRAM

2 “SEC. 22. (a) ESTABLISHMENT.—The Director shall  
3 establish a program to support research at institutions of  
4 higher education (where the term “institution of higher  
5 education” has the meaning given such term in section  
6 101 of the Higher Education Act of 1965 (20 U.S.C.  
7 1001)), for-profit research organizations, or consortia of  
8 such institutions, to improve the security of networked in-  
9 formation systems. The program shall—

10 “(1) include multidisciplinary, long-term, high-  
11 risk research;

12 “(2) include directed research to address needs  
13 identified through the activities of the Computer  
14 System Security and Privacy Advisory Board under  
15 section 20(e)(2) of this Act; and

16 “(3) promote the development of a substantial  
17 academic research community working at the leading  
18 edge of knowledge in subject areas relevant to the  
19 security of networked information systems.

20 “(b) FELLOWSHIPS.—(1) In order to help meet the  
21 requirement of subsection (a)(3), the Director shall pro-  
22 vide support for post-doctoral research fellowships and for  
23 senior research fellowships. Support for such fellowships  
24 shall be made available through research projects funded  
25 under the program established by subsection (a) and

1 through a separate fellowship program described in para-  
2 graph (2) of this subsection. Senior fellowships shall be  
3 made available for established researchers who seek to  
4 change research fields and pursue studies related to the  
5 security of networked information systems.

6 “(2) The Director is authorized to establish a pro-  
7 gram to award post-doctoral research fellowships and sen-  
8 ior research fellowships to individuals seeking research po-  
9 sitions at institutions, including the Institute, engaged in  
10 research activities related to the security of networked in-  
11 formation systems. To be eligible for an award under this  
12 paragraph, an individual shall submit an application to the  
13 Director at such time, in such manner, and containing  
14 such information as the Director may require.

15 “(3) Under this subsection, the Director is authorized  
16 to provide stipends for senior research fellowships at levels  
17 consistent with support for a faculty member in a sab-  
18 batical position and post-doctoral research fellowships at  
19 the level of the Institute’s Post Doctoral Research Fellow-  
20 ship Program.

21 “(c) AWARDS; APPLICATIONS.—The Director is au-  
22 thorized to award grants or cooperative agreements to in-  
23 stitutions of higher education to carry out the program  
24 established under subsection (a). To be eligible for such  
25 an award, an institution of higher education shall submit

1 an application to the Director at such time, in such man-  
2 ner, and containing such information as the Director may  
3 require. The application shall include a description of—

4 “(1) the number of graduate students antici-  
5 pated to participate in the research project and the  
6 level of support to be provided to each;

7 “(2) the number of post-doctoral research fel-  
8 lowships included under the project and the level of  
9 support to be provided to each; and

10 “(3) the number of senior research fellows an-  
11 ticipated to participate in the research project and  
12 the level of support to be provided to each.

13 The Director shall ensure that a major consideration for  
14 making such awards shall be the emphasis and commit-  
15 ment demonstrated by the application to meeting the pro-  
16 gram requirement specified by subsection (a)(3).

17 “(d) PROGRAM MANAGERS.—The Director shall des-  
18 ignate employees of the Institute to serve as program  
19 managers for the program established under subsection  
20 (a). Program managers so designated shall be responsible  
21 for—

22 “(1) establishing broad research goals for the  
23 program and publicizing the goals to the academic  
24 research community;

1           “(2) soliciting applications for specific research  
2           projects to address the goals developed under para-  
3           graph (1);

4           “(3) selecting research projects for support  
5           under the program from among applications sub-  
6           mitted to the Institute, following consideration of—

7                   “(A) the novelty and scientific and tech-  
8                   nical merit of the proposed projects;

9                   “(B) the demonstrated capabilities of the  
10                  individual or individuals submitting the applica-  
11                  tions to successfully carry out the proposed re-  
12                  search; and

13                  “(C) other criteria determined by the Di-  
14                  rector, based on information specified for inclu-  
15                  sion in applications under subsection (c); and

16           “(4) monitoring the progress of research  
17           projects supported under the program.

18           “(e) REVIEW OF PROGRAM.—(1) The Director  
19           shall—

20                   “(A) provide for periodic reviews by the senior  
21                   staff of the Institute of the portfolio of research  
22                   awards monitored by each program manager des-  
23                   ignated in accordance with subsection (d); and

24                   “(B) seek the advice of the Computer System  
25                   Security and Privacy Advisory Board, established

1 under section 21, on the appropriateness of the re-  
2 search goals and on the quality and relevance of re-  
3 search projects managed by program managers in  
4 accordance with subsection (d).

5 “(2) The Director shall also contract with the Na-  
6 tional Research Council for a comprehensive review of the  
7 program established under subsection (a) during the 5th  
8 year of the program. Such review shall include an assess-  
9 ment of the scientific quality of the research conducted,  
10 the relevance of the research results obtained to the goals  
11 of the program, and the progress of the program in pro-  
12 moting the development of a substantial academic re-  
13 search community working at the leading edge of knowl-  
14 edge in the field. The Director shall submit to Congress  
15 a report on the results of the review under this paragraph  
16 no later than six years after the initiation of the pro-  
17 gram.”.

18 **SEC. 4. INTRAMURAL SECURITY RESEARCH.**

19 Section 20 of the National Institute of Standards and  
20 Technology Act (15 U.S.C. 278g–3) is amended—

21 (1) by redesignating subsection (d) as sub-  
22 section (f); and

23 (2) by inserting after subsection (c) the fol-  
24 lowing new subsection:



1 “(d) As part of the research activities conducted in  
2 accordance with subsection (b)(4), the Institute shall—

3 “(1) conduct research to address emerging  
4 technologies associated with composing a networked  
5 computer system from components while ensuring it  
6 maintains desired security properties; and

7 “(2) carry out multidisciplinary, long-term,  
8 high-risk research on ways to improve the security  
9 of networked information systems.”.

10 **SEC. 5. AUTHORIZATION OF APPROPRIATIONS.**

11 There are authorized to be appropriated to the Sec-  
12 retary of Commerce for the National Institute of Stand-  
13 ards and Technology—

14 (1) for activities under section 22 of the Na-  
15 tional Institute of Standards and Technology Act, as  
16 added by section 3 of this Act, \$25,000,000 for fis-  
17 cal year 2003, \$40,000,000 for fiscal year 2004,  
18 \$55,000,000 for fiscal year 2005, \$70,000,000 for  
19 fiscal year 2006, \$85,000,000 for fiscal year 2007,  
20 and such sums as may be necessary for fiscal years  
21 2008 through 2012; and

22 (2) for activities under section 20(d) of the Na-  
23 tional Institute of Standards and Technology Act, as  
24 added by section 4 of this Act, \$5,000,000 for fiscal  
25 year 2003, \$5,200,000 for fiscal year 2004,

1       \$5,400,000 for fiscal year 2005, \$5,600,000 for fis-  
2       cal year 2006, and \$5,800,000 for fiscal year 2007.

3       **SEC. 6. COMPUTER SECURITY REVIEW, PUBLIC MEETINGS,**  
4                                   **AND INFORMATION.**

5       Section 20 of the National Institute of Standards and  
6       Technology Act (15 U.S.C. 278g–3), as amended by this  
7       Act, is further amended by inserting after subsection (d),  
8       as added by section 4 of this Act, the following new sub-  
9       section:

10       “(e)(1) The Institute shall solicit the recommenda-  
11       tions of the Computer System Security and Privacy Advi-  
12       sory Board, established by section 21, regarding standards  
13       and guidelines that are being considered for submittal to  
14       the Secretary in accordance with subsection (a)(4). The  
15       recommendations of the Board shall accompany standards  
16       and guidelines submitted to the Secretary.

17       “(2) There are authorized to be appropriated to the  
18       Secretary \$1,030,000 for fiscal year 2002 and \$1,060,000  
19       for fiscal year 2003 to enable the Computer System Secu-  
20       rity and Privacy Advisory Board, established by section  
21       21, to identify emerging issues, including research needs,  
22       related to computer security, privacy, and cryptography  
23       and to convene public meetings on those subjects, receive

1 presentations, and publish reports, digests, and sum-  
2 maries for public distribution on those subjects.”.

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